

CLAIMS LISTING

1. (Original) A memory module indicator device having a indicator circuit using an indicator element to indicate situation of access to readable and writable semiconductor memory mounted on a standardized memory module connected to a computer, wherein the indicator element is provided corresponding to a type of access to the semiconductor memory; and wherein the indicator circuit uses the indicator element corresponding to the access type to indicate frequency of the type of access to the semiconductor memory.
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2. (Original) The memory module indicator device according to claim 1, wherein the indicator circuit uses the indicator element corresponding to the access type to indicate frequency of the type of access to the semiconductor memory and holds an indication corresponding to the maximum frequency of the access.
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3. (Original) The memory module indicator device according to claim 1, wherein the computer is mounted with a general-purpose motherboard connector and the memory module is mounted with a memory module connection terminal connectable to the motherboard connector; wherein the memory module indicator device is provided with a connection terminal having the same shape as the memory module connection terminal and is provided with a connector having the same shape as the motherboard connector; and wherein the indicator circuit uses the indicator element corresponding to the access type to indicate frequency of the type of access to the semiconductor memory when the connection terminal is connected to the motherboard connector and the memory module connection terminal is connected to the connector.
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4. (Original) The memory module indicator device according to claim 1, wherein the indicator circuit counts the number of accesses to the semiconductor memory for the access type during a specified period and uses the indicator element corresponding to the access type to provide an indication corresponding to the number of counted accesses.
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5. (Original) The memory module indicator device according to claim 4, wherein there is provided a plurality of the indicator elements for each of the access types; wherein the indicator circuit turns on indicator elements corresponding to the access type; and
5 wherein the number of the indicator elements corresponds to the number of counted accesses.

6. (Original) The memory module indicator device according to claim 4, wherein the indicator circuit comprises a common counter circuit to count the number of accesses
10 independently of the access types; wherein the indicator circuit receives a specified clock signal and generates a count signal whose state accordingly varies with the access type for each period corresponding to the specified period; and wherein, during the specified period, the indicator circuit uses the common counter circuit to count the number of accesses of the type corresponding to a state of the count signal and, after termination of
15 the specified period, uses the indicator element corresponding to the access type to perform indication corresponding to the number of counted accesses.

7. (Original) The memory module indicator device according to claim 5, wherein the access type comprise writing to the semiconductor memory and reading from the
20 semiconductor memory; wherein the memory module accesses the semiconductor memory in synchronization with a pulse clock signal input from the computer, receives a select signal indicative of a selection state of the semiconductor memory from the computer, and accesses the semiconductor memory correspondingly to the state of a write enable signal which is input from the computer to indicate whether or not to enable
25 writing; wherein the indicator circuit comprises: a common counter circuit to count the number of accesses independently of the access types; and a counting divider circuit to divide the clock signal and to generate a count division signal which changes alternately between a write count state and a read count state during each period corresponding to the specified period, wherein, when the count division signal shows a write count state

and the write enable signal is set to enable writing during the specified period, the indicator circuit uses the common counter circuit to count the number of times to input the select signal indicative of a selection state from the computer and, after termination of the specified period, activates as many indicator elements for writing as the number of
5 counted accesses; and wherein, when the count division signal shows a read count state and the write enable signal is set to disable writing during the specified period, the indicator circuit uses the common counter circuit to count the number of times to input the select signal indicative of a selection state from the computer and, after termination of the specified period, activates as many indicator elements for reading as the number of
10 counted accesses.

8. (Original) A memory module indicator device having a indicator circuit using an indicator element to indicate situation of access to readable and writable semiconductor memory mounted on a standardized memory module connected to a computer, wherein
15 the indicator circuit uses the indicator element to indicate a frequency of access to the semiconductor memory and holds an indication corresponding to the maximum frequency of the access.

9. (Original) The memory module indicator device according to claim 8, wherein the
20 memory module accesses the semiconductor memory in synchronization with a pulse clock signal input from the computer, receives a select signal indicative of a selection state of the semiconductor memory from the computer, and accesses the semiconductor memory correspondingly to the state of a write enable signal which is input from the computer to indicate whether or not to enable writing; wherein the indicator circuit
25 comprises: a counter circuit to count the number of accesses; a counting divider circuit to divide the clock signal and to generate a count division signal having a cycle corresponding to a specified period; and a releasing divider circuit to divide the clock signal and to generate a signal indicating a release state of a held indication corresponding to the maximum frequency of the access at a specified interval longer than

the cycle of the count division signal, wherein, during the specified period, the indicator circuit uses the counter circuit to count the number of times to input the select signal indicative of a selection state from the computer and, after termination of the specified period, activates as many indicator elements as the number of counted accesses; and

5 wherein, when the signal indicating a release state is generated, the indicator circuit releases a held indication corresponding to the maximum frequency of the access.

10. (Original) A memory module indicator device which uses an indicator element to indicate a situation of access to readable and writable semiconductor memory mounted on a standardized memory module having a memory module connection terminal connectable to a general-purpose motherboard connector provided on a computer, the device comprising: a connection terminal having the same shape as the memory module connection terminal; a connector having the same shape as the motherboard connector; and an indicator circuit which uses the indicator element to perform indication

15 corresponding to the frequency of access to the semiconductor memory when the connection terminal is connected to the motherboard connector and the memory module connection terminal is connected to the connector.

20. 11. (Original) The memory module indicator device according to claim 10, further comprising: a printed wiring board which has the connection terminal formed and is mounted with the connector; a signal cable connected to and extended from the printed wiring board; and an indicator unit which is connected to the extended signal cable and is mounted with the indicator element.

25. 12. (New) The memory module indicator device according to claim 1,
 wherein each of the indicator elements represents a specified number of accesses;
 wherein the indicator circuit comprises:
 a counter circuit which counts the number of accesses to the semiconductor memory during a specified period; and

a counting divider circuit which divides specified clock signals and generates a count division signal which changes alternately between a write count state and a read count state, each period corresponds to the specified period,

wherein, the indicator circuit uses the counter circuit during each specified period
5 corresponding to the state of the count division signal, thus causing the counter circuit to count the number of accesses of each access type, after termination of the specified period, turns on indicator elements corresponding to the access type so that the lighting indicator elements represents the counted number of accesses and hold lighting state of the indicator element which represents most significant number of accesses and was
10 lighted just before the termination of the specified period, and makes all of the indicator elements corresponding to the access type turn off at a specified interval longer than the cycle of the count division signal.

13. (New) The memory module indicator device according to claim 12,

15 wherein the indicator circuit comprises a releasing divider circuit which divides the clock signals and to generate a signal indicating a release state of a held indication corresponding to the maximum frequency of the access at a specified interval longer than the cycle of the count division signal,

wherein, when the signal indicating a release state is generated for the access
20 type, the indicator circuit makes all of the indicator elements corresponding to the access type turn off.

14. (New) The memory module indicator device according to claim 8,

wherein the computer is mounted with a general-purpose motherboard connector
25 and the memory module is mounted with a memory module connection terminal connectable to the motherboard connector;

wherein the memory module indicator device comprises:
a connection terminal having the same shape as the memory module connection terminal;
30 a connector having the same shape as the motherboard connector;

a printed wiring board which has the connection terminal formed and is mounted with the connector;

a signal cable connected to and extended from the printed wiring board; and

an indicator unit which is connected to the extended signal cable and is mounted

5 with the indicator element,

wherein the indicator circuit uses the indicator element to perform indication corresponding to the frequency of access to the semiconductor memory when the connection terminal is connected to the motherboard connector and the memory module connection terminal is connected to the connector.